

2009

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## Recommended Citation

Paul J. Heald, *Does the Song Remain the Same ? An Empirical Study of Bestselling Musical Compositions (1913-1932) and Their Use in Cinema (1968-2007)*, 60 Case W. Res. L. Rev. 1 (2009)

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## ARTICLES

# DOES THE SONG REMAIN THE SAME? AN EMPIRICAL STUDY OF BESTSELLING MUSICAL COMPOSITIONS (1913–1932) AND THEIR USE IN CINEMA (1968–2007)

*Paul J. Heald*<sup>†</sup>

An influential group of commentators assert that the public suffers when valuable copyrighted works fall into the public domain. One concern is under-exploitation, the possibility that a work without an owner will not be adequately distributed or otherwise made available to the public. According to William Landes and Richard Posner, “[A]n absence of copyright protection for intangible works may lead to inefficiencies because . . . of impaired incentives to invest in maintaining and exploiting these works.”<sup>1</sup> Congress,<sup>2</sup> the courts,<sup>3</sup> and

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<sup>1</sup> William M. Landes & Richard A. Posner, *Indefinitely Renewable Copyright*, 70 U. CHI. L. REV. 471, 475 (2003).

<sup>2</sup> A House committee found in 1998 that retroactive extension of protection to existing works nonetheless would “provide copyright owners generally with the incentive to restore older works and further disseminate them to the public.” H.R. REP. NO. 105–452, at 4 (1998).

<sup>3</sup> See, e.g., *Eldred v. Ashcroft*, 537 U.S. 186, 207 (2003) (Congress “rationally credited

the Copyright Office<sup>4</sup> all relied on this theory to support recent copyright term-extension legislation.<sup>5</sup> Although the only study testing this theory (conducted after the term-extension legislation had passed and been litigated) casts significant doubt on the empirical assertion of under-exploitation of public-domain works,<sup>6</sup> the effort by copyright owners to win further term extensions continues unabated.<sup>7</sup> The present study confirms doubts about under-exploitation in a more robust empirical context.

A different, and until now empirically untested, claim asserts that popular works falling into the public domain may be over-exploited in two different ways. First, a public-domain work might be “overgrazed,” to use the terminology found in the tragedy-of-the-commons literature.<sup>8</sup> Landes and Posner assert that the value of “a novel or a movie or a comic book character or a piece of music or a painting” could be depleted in much the same way as “unlimited drilling from a common pool of oil or gas would deplete the pool prematurely.”<sup>9</sup> Second, the value of ownerless works could be dissipated through debasing or inappropriate uses.<sup>10</sup> Although both

projections that longer terms would encourage copyright holders to invest in the restoration and public distribution of their works.”); *Eldred v. Reno*, 239 F.3d 372, 379 (D.C. Cir. 2001) (arguing that works falling into the public domain will be less available to the public), *aff’d sub nom.* *Eldred v. Ashcroft*, 537 U.S. 186 (2003).

<sup>4</sup> See *Copyright Term, Film Labeling, and Film Preservation Legislation: Hearing on H.R. 989, H.R. 1248, and H.R. 1734 Before the Subcomm. on Courts and Intellectual Property of the H. Comm. on the Judiciary*, 104th Cong. 161, 171, 188 (1996) (statement of Marybeth Peters, Register of Copyrights) (arguing that publishers will not risk investing in a work they do not own and, therefore, term extension is needed to assure availability of works).

<sup>5</sup> See 17 U.S.C. § 302(a) (1994 & Supp. IV 1998).

<sup>6</sup> See Paul J. Heald, *Property Rights and the Efficient Exploitation of Copyrighted Works: An Empirical Analysis of Public Domain and Copyrighted Fiction Bestsellers*, 92 MINN. L. REV. 1031, 1046–50 (2008) (noting that bestselling fiction from 1913–1922, now in the public domain, was as publicly available as copyrighted bestsellers published from 1923–1932 during the years 1988–2001, and was more available from 2001–2006).

<sup>7</sup> See, e.g., *Commission Staff Working Document: Impact Assessment on the Legal and Economic Situation of Performers and Record Producers in the European Union*, COM (2008) xxx final (Apr. 23, 2008), available at [http://ec.europa.eu/internal\\_market/copyright/docs/term/ia\\_term\\_en.pdf](http://ec.europa.eu/internal_market/copyright/docs/term/ia_term_en.pdf) (last visited Sept. 21, 2009) (analyzing EU proposal to extend copyright term in sound recordings from 50 to 95 years).

<sup>8</sup> See Garrett Hardin, *The Tragedy of the Commons*, 162 SCIENCE 1243, 1244 (1968) (arguing that real property that lacks an owner will be overused and its value degraded).

<sup>9</sup> Landes & Posner, *supra* note 1, at 487.

<sup>10</sup> See Lee Anne Fennell, *Common Interest Tragedies*, 98 NW. U. L. REV. 907, 918 (2004) (“Intellectual goods exhibit ‘nonrivalry’ in consumption, insofar as the transmission of a song or theory from me to you does not leave any less of the song or theory for me. Nevertheless, these goods are subject to a form of overgrazing, insofar as consumers have limited attention.” (footnote omitted)); Michael Steven Green, *Copyrighting Facts*, 78 IND. L.J. 919, 925 (2003) (“In addition to encouraging authors to create new works, copyrights also encourage authors to efficiently utilize constituents of works that already exist. For example, if no one had a property right in the character Superman, authors could freely create works in which Superman appeared

the overgrazing and debasement theories of over-exploitation are based on empirical assertions about what might happen to works when they fall into the public domain, no empirical studies have yet tested these hypotheses.<sup>11</sup> The present study therefore fills a significant gap in the literature.

Mark Lemley identifies both the under-exploitation and the over-exploitation arguments as “ex post” justifications for protecting works, asserting that both sets of arguments provide a rationale for extending protection without reference to “ex ante” incentives to create.<sup>12</sup> Ex post justifications based on under- and over-exploitation worries stand in the forefront of the worldwide debate over whether copyright terms for existing works should be retroactively extended.<sup>13</sup> Because the standard incentive-to-create rationale cannot justify extending the term of protection for a work that already exists,<sup>14</sup> ex post justifications are driving copyright term-extension debates around the world, and are likely to drive the debate in the United States when the present twenty-year extension runs out in 2018.

Neither the over- nor under-exploitation theories have gone unchallenged. Lemley scoffs at *under*-exploitation worries, stating that the claim “that control by a single firm is necessary to induce efficient distribution [is] theoretically flawed and empirically

as a character without concern for the effect their works had on the value of actual and potential Superman-based works.”); Alex Kozinski, *Mickey & Me*, 11 U. MIAMI ENT. & SPORTS L. REV. 465, 469 (1994) (arguing that unauthorized uses “end up diminishing the value of the product, not just to the creator, but to the general public as well”); STAN LIEBOWITZ & STEPHEN MARGOLIS, SEVENTEEN FAMOUS ECONOMISTS WEIGH IN ON COPYRIGHT: THE ROLE OF THEORY, EMPIRICS, AND NETWORK EFFECTS 2 (2004), <http://aei-brookings.org/admin/authorpdfs/redirect-safely.php?fname=../pdffiles/phptf.pdf> (noting “the possibility of network effects in the market for derivative works that might make a copyright commons uneconomic”); cf. Justin Hughes, *“Recoding” Intellectual Property and Overlooked Audience Interests*, 77 TEX. L. REV. 923, 926 (1999) (“[N]on-owners commonly benefit from owner control that is used to keep a cultural object ‘stable.’”).

<sup>11</sup> See Mark A. Lemley, *Ex Ante Versus Ex Post Justifications for Intellectual Property*, 71 U. CHI. L. REV. 129, 143 (2004) (“[T]his justification for intellectual property depends on proof that there is in fact a tragedy of the commons in information.”).

<sup>12</sup> See *id.* at 129–31.

<sup>13</sup> See, e.g., ANDREW GOWERS, GOWERS REVIEW OF INTELLECTUAL PROPERTY 56–57 (2006), [http://www.hm-treasury.gov.uk/media/6/E/pbr06\\_gowers\\_report\\_755.pdf](http://www.hm-treasury.gov.uk/media/6/E/pbr06_gowers_report_755.pdf) (study commissioned by the British Treasury department rejecting ex post justifications for extending copyright protection for existing works). Japan is also considering retroactive term extension. See The Patry Copyright Blog, <http://williampatry.blogspot.com/2007/11/japan-looks-at-copyright-term-exten-sion.html> (Nov. 5, 2007, 17:18 EST). The author recently presented his findings on the exploitation of bestselling public domain fiction in Tokyo. See Paul J. Heald, Professor of Law, Univ. of Ga., Presentation to the RCLIP Special Seminar: Empirical Research Report on Copyright Protection Duration (Sept. 19, 2007).

<sup>14</sup> See Heald, *supra* note 6, at 1032; Lemley, *supra* note 11, at 133–34 (“Congress obviously could not justify retroactive extension on the ground that it would encourage dead people to produce more works.”).

unsound,”<sup>15</sup> and wondering why there is “some greater need to subsidize [by granting exclusive rights] the making of more copies of *Ulysses* than the making of more paper clips.”<sup>16</sup> Amicus briefs<sup>17</sup> in *Eldred v. Ashcroft*,<sup>18</sup> including one signed by five Nobel Laureate economists,<sup>19</sup> have also rejected the under-exploitation argument, and my own empirical work concludes that popular books falling into the public domain are not under-exploited in comparison to their copyrighted counterparts.<sup>20</sup>

The over-exploitation theory has also come under attack.<sup>21</sup> Richard Epstein is a doubter, suggesting that “[a]nyone is hard pressed to believe that Shakespeare’s star has been dimmed by the calamities committed in his name . . . .”<sup>22</sup> So too are Lemley and Dennis Karjala, both of whom deploy market-based economic arguments to allay fears of a congestion externality caused by overuse of copyrighted works.<sup>23</sup> They conclude that “a belief that the original creator (or his transferee) can best manage the work in the public interest runs strongly contrary to our long-standing and fundamental reliance on free markets to allocate resources to the production and distribution of goods.”<sup>24</sup>

Although the theoretical arguments on both sides are interesting, commentators have so far assumed (but not necessarily believed) that works falling into the public domain will be exploited at a different rate than their copyrighted counterparts. Exploitation rates are, of course, observable and ripe for empirical analysis. In Part I of the Article, I explain the methodology of my study of popular musical compositions from 1913–1932 as they appear in movies from 1968–2007. The study tracks songs from 1913–1922 as they fall into

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<sup>15</sup> Lemley, *supra* note 11, at 138.

<sup>16</sup> *Id.* at 136.

<sup>17</sup> See, e.g., Brief of Amici Curiae The Internet Archive et al. in Support of Petitioners at 16 n.25, *Eldred v. Ashcroft*, 537 U.S. 186 (2003) (No. 01-618), 2002 WL 1059714, at \*17 n.25 (showing that in 2001 more of the total number of books published in 1920 were in print than those published in 1930).

<sup>18</sup> 537 U.S. 186 (2003).

<sup>19</sup> See Brief of George A. Akerlof et al. as Amici Curiae in Support of Petitioners, *Eldred*, 537 U.S. 186 (No. 01-618), 2002 WL 1041846.

<sup>20</sup> See Heald, *supra* note 6.

<sup>21</sup> See Laura R. Bradford, *Parody and Perception: Using Cognitive Research to Expand Fair Use in Copyright*, 46 B.C. L. REV. 705, 708 (2005) (“Academic critiques of using an overgrazing doctrine for intellectual property are widespread.”).

<sup>22</sup> Richard A. Epstein, *Liberty versus Property? Cracks in the Foundations of Copyright Law*, 42 SAN DIEGO L. REV. 1, 26 (2005).

<sup>23</sup> See Dennis S. Karjala, *Congestion Externalities and Extended Copyright Protection*, 94 GEO. L.J. 1065 (2006); Lemley, *supra* note 11.

<sup>24</sup> Karjala, *supra* note 23, at 1079 (citing Lemley, *supra* note 11, at 144).

the public domain, and compares changes in exploitation rates with songs from 1923–1932 that are still protected by copyright.

Studying musical compositions has several advantages over my prior study of bestselling books. First, tracking the appearance of compositions in movies provides data on the exploitation of derivative works.<sup>25</sup> Musical compositions usually appear in movies as works realized by someone other than the copyright owner. In a movie we hear a recording of the composition, a derivative work under the Copyright Act.<sup>26</sup> Since those worried about over-exploitation inevitably warn against unauthorized derivative works as their most serious potential concern,<sup>27</sup> the study provides especially relevant data. Second, relying on the appearance of musical compositions in movies provides an alternative, and possibly superior, measure of availability to the counting of book editions and book publishers in my prior study.<sup>28</sup> Therefore, the present study's finding of no under-exploitation within my sample is not merely duplicative. Finally, and most importantly, studying songs provides the first opportunity to study claims of over-exploitation.

In Part II, the methodology and the results of the study are reported. Before they fell into the public domain, the relevant set of musical compositions from 1912–1923 appeared in one movie every 15.3 years. After they fell into the public domain, the songs appeared in movies much more frequently, about once every 3.8 years, a four-fold increase. Compositions from 1923–1932, which have always been protected by copyright, appeared in movies once every 7.8 years and 3.3 years respectively, an increase of approximately two and one-half times over the parallel periods of time. The greater rate of increase for the public-domain compositions allays worries of under-exploitation, while the lower absolute rate of exploitation suggests strongly that overgrazing concerns are misplaced. A formal statistical analysis of the data is provided in Appendix B. Part III joins the theoretical debate and suggests why self-regulation by both producers and consumers of copyrighted works explains the absence

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<sup>25</sup> See 17 U.S.C. § 101 (2006) (defining a “derivative work” as a “work based upon one or more preexisting works, such as a . . . sound recording . . . or any other form in which a work may be recast, transformed, or adapted”); *Id.* § 106(2) (declaring that authors’ rights include the exclusive right to prepare derivative works).

<sup>26</sup> See *id.* § 101 (naming a “sound recording” as a type of derivative work).

<sup>27</sup> See sources cited *supra* note 10 (relying primarily on concerns over the creation of unauthorized derivative works).

<sup>28</sup> The study measured availability of public domain books listed in *Books In Print* and tracked the number of editions and publishers. These figures were used as proxy for more direct measures, such as sales figures (which are usually non-public and proprietary) or a nationwide survey of availability in bookstores. See Heald, *supra* note 6, at 1040.

of observable market failure. Building on the data gathered here and in a prior study, I suggest when rare cases of over- or under-exploitation might occur. Identifying these cases requires defining the most slippery sort of damage—debasement of a copyrighted work—in a more precise manner than has previously appeared in the literature. The article concludes that addressing any potential market failure requires a much more narrowly tailored regulatory response than general copyright term extension that extends protection to millions of works in order to prevent a theoretical harm to a handful.

### I. METHODOLOGY

Previous studies confirm that most copyrighted works do not hold their value over time. Landes and Posner note, “fewer than 11 percent of the copyrights registered between 1883 and 1964 were renewed at the end of their twenty-eight-year term, even though the cost of renewal was small.”<sup>29</sup> They point out that of 10,027 books published in the U.S. in 1930, only 1.7% remained in print in 2001.<sup>30</sup>

Even those worried about what happens when works fall into the public domain agree there is little reason to extend copyright protection to works with no current value.<sup>31</sup> In fact, extending copyright for those works would entail significant tracing and transaction costs, and would almost certainly be inefficient.<sup>32</sup> Given that no one argues for increasing protection for obscure works, the present study identified the 1,294 most popular musical compositions from 1913–1932 and focused on the seventy-four most enduringly valuable of those compositions as they appeared in movies from 1968–2007. The years 1968–2007 were chosen because the compositions from 1913–1922 began to fall into the public domain in 1988, the mid-point in that timeline. Compositions from 1913–1932 were chosen because the works published from 1913–1922 are all in the public domain, and properly renewed works published from 1923–1932 are all still protected by copyright as a result of the 1998 Copyright Term Extension Act,<sup>33</sup> allowing for a basically

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<sup>29</sup> Landes & Posner, *supra* note 1, at 473.

<sup>30</sup> *Id.* at 474; see also Brief of Amici Curiae The Internet Archive et al., *supra* note 17, at 16 n.25 (reporting that 174 books out of 10,027 published in 1930 were currently available for sale).

<sup>31</sup> See Landes & Posner, *supra* note 1, at 474 (discussing the depreciation of copyrights).

<sup>32</sup> See *id.* at 477–80 (discussing the tracing and transaction costs associated with copyright extension).

<sup>33</sup> See 17 U.S.C. § 304 (2006). The extension only applied to works that had been properly renewed in their twenty-eighth year after publication under the 1909 Act. *Id.*

symmetrical comparison of ten years' worth of works from each group. Until extension, the effective copyright term for these works was seventy-five years, so works from 1913 fell into the public domain in 1988, works from 1914 in fell into the public domain in 1989, and so on until the 1998 legislation ended the flow of works into the public domain.<sup>34</sup>

Studying a group of works from approximately the same era provides the opportunity to study what happened to works from 1913–1922 after they fell into the public domain, and to compare rates of exploitation with those works from 1923–1932 that remained protected. The initial data set included 601 of the most popular compositions from 1913–1922 and 693 of the most popular compositions from 1923–1932, as listed in the most accepted compilation of popular historical musical compositions.<sup>35</sup> All of these songs were then tracked in the Internet Movie Database soundtrack database,<sup>36</sup> which, at the time of the study contained comprehensive information on almost 380,000 movies.<sup>37</sup>

As the present debate revolves around only those works that have substantial present value, the primary statistical analysis was performed on the seventy-four musical compositions that appeared in at least four movies from 1968–2007<sup>38</sup> (although the findings hold for compositions that appear in one, two, or three movies<sup>39</sup>). Since current sales data or licensing information of historic compositions is mostly proprietary and unavailable, appearance in movies serves as a proxy for enduring popularity. Movie producers invest significant resources into choosing music for their soundtracks. Their goal is to please audiences. Observing their choices provides an objective and neutral indication of what historic music is likely most valuable to consumers.

A substantial majority of the compositions (forty-four out of seventy-four) were published in the six-year period from 1926–1931, indicating the significance of the golden age of Tin Pan Alley,<sup>40</sup> an

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<sup>34</sup> See JULIE E. COHEN ET AL., COPYRIGHT IN A GLOBAL INFORMATION ECONOMY 153–56 (2d ed. 2006).

<sup>35</sup> See JULIUS MATTFELD, VARIETY MUSIC CAVALCADE, 1620–1961: A CHRONOLOGY OF VOCAL AND INSTRUMENTAL MUSIC POPULAR IN THE UNITED STATES 319–479 (rev. ed. 1962).

<sup>36</sup> The Internet Movie Database, Soundtracks Browser, <http://www.imdb.com/Sections/Soundtracks/> (last visited Nov. 4, 2009).

<sup>37</sup> The Internet Movie Database, IMDb Statistics, [http://www.imdb.com/database\\_statistics](http://www.imdb.com/database_statistics) (last visited Sept. 5, 2008) (listing 379,871 titles at time of writing).

<sup>38</sup> See *infra* App. A for the full subset of seventy-four songs. The full list of 1,294 songs can be obtained from the author.

<sup>39</sup> See *infra* App. B for a full statistical analysis.

<sup>40</sup> See generally PHILIP FURIA, THE POETS OF TIN PAN ALLEY: A HISTORY OF AMERICA'S GREAT LYRICISTS (1990) (detailing the history and lyricism of popular American songs of the



extraordinary time period which marked the publication of many enduringly familiar works like "Bye Bye Blackbird,"<sup>41</sup> "Blue Skies [Smiling at Me],"<sup>42</sup> "My Blue Heaven,"<sup>43</sup> "Let's Do It [Let's Fall in Love],"<sup>44</sup> "Let's Misbehave,"<sup>45</sup> "When You're Smiling—The Whole World Smiles with You,"<sup>46</sup> "Bolero,"<sup>47</sup> "Happy Days Are Here Again,"<sup>48</sup> "Singin' in the Rain,"<sup>49</sup> "Star Dust,"<sup>50</sup> "Embraceable You,"<sup>51</sup> "Georgia on My Mind,"<sup>52</sup> "Get Happy,"<sup>53</sup> "I Got Rhythm,"<sup>54</sup> "Just a Gigolo,"<sup>55</sup> and "Mood Indigo."<sup>56</sup> During this time, Cole Porter, the Gershwin Brothers, Harold Arlen, Hoagy Carmichael, Duke Ellington, and many others were at the prime of their famous composing careers. Since only fifteen of the compositions dated from the 1913–1922 time period, four qualifying songs<sup>57</sup> from 1909–1912 augment that portion of the data.

The public-domain songs were tracked during the period they were protected by copyright law and then after they fell into the public

early 20th century); DAVID A. JASEN, *TIN PAN ALLEY: THE COMPOSERS, THE SONGS, THE PERFORMERS AND THEIR TIMES* (1988) (analyzing the history and impact of the Tin Pan Alley lyricists).

<sup>41</sup> MORT DIXON & RAY HENDERSON, *BYE BYE BLACKBIRD* (Jerome H. Remick & Co. 1926).

<sup>42</sup> IRVING BERLIN, *BLUE SKIES* (Irving Berlin, Inc. 1927).

<sup>43</sup> GEORGE WHITING & WALTER DONALDSON, *MY BLUE HEAVEN* (Leo Feist, Inc. 1927).

<sup>44</sup> COLE PORTER, *LET'S DO IT* (T.B. Harms, Inc. 1928).

<sup>45</sup> COLE PORTER, *LET'S MISBEHAVE* (T.B. Harms, Inc. 1928).

<sup>46</sup> MARK FISHER, JOE GOODWIN & LARRY SHAY, *WHEN YOU'RE SMILING* (Mills Music, Inc. 1928).

<sup>47</sup> MAURICE RAVEL, *BOLERO* (Allans 1929).

<sup>48</sup> JACK YELLEN & MILTON AGER, *HAPPY DAYS ARE HERE AGAIN* (Ager, Yellen & Bornstein, Inc. 1929).

<sup>49</sup> ARTHUR REED & NACIO H. BROWN, *SINGIN' IN THE RAIN* (Robbins Music Corp. 1929).

<sup>50</sup> MITCHELL PARRISH & HOAGY CARMICHAEL, *STAR DUST* (Mills Music, Inc. 1929).

<sup>51</sup> IRA GERSHWIN & GEORGE GERSHWIN, *EMBRACEABLE YOU* (New World Music Corp. 1930).

<sup>52</sup> STUART GORRELL & HOAGY CARMICHAEL, *GEORGIA ON MY MIND* (Peer Int'l. Corp. 1930).

<sup>53</sup> TED KOHLER & HAROLD ARLEN, *GET HAPPY* (Remick Music Corp. 1930).

<sup>54</sup> IRA GERSHWIN & GEORGE GERSHWIN, *I'VE GOT RHYTHM* (New World Music Corp. 1930).

<sup>55</sup> IRVING CAESAR & LEONELLO CASUCCI, *JUST A GIGOLO* (DeSylva, Brown & Henderson, Inc. 1930).

<sup>56</sup> DUKE ELLINGTON, IRVING MILLS & ALBANY BIGARD, *MOOD INDIGO* (Gotham Music Service, Inc. 1931). For a more complete listing of the songs discussed in the text, along with other popular musical compositions from this period, see MATTFELD, *supra* note 35, at 418–65.

<sup>57</sup> Qualifying songs are those that appeared in at least four movies from 1968–2007. They are: IRVING BERLIN, *ALEXANDER'S RAGTIME BAND* (Ted Snyder Co. 1911); JACK JUDGE & HARRY WILLIAMS, *IT'S A LONG, LONG WAY TO TIPPERARY* (B. Feldman & Co. 1912); EDWARD MADDEN & GUS EDWARDS, *BY THE LIGHT OF THE SILVERY MOON* (Jerome H. Remick & Co. 1909); and BETH S. WHITSON & LEO FRIEDMAN, *LET ME CALL YOU SWEETHEART* (Harold Rossiter Music Co. 1910).

domain, seventy-five years after publication. For example, “Danny Boy” was first published in 1913<sup>58</sup> and entered the public domain in 1988. So, its use in movies from 1968–1987 (twenty years) when it was protected by copyright was tracked separately from its use in movies from 1988–2007 (twenty years) when it was in the public domain. Compositions from 1914 were therefore tracked from 1968–1988 (twenty-one years) and then from 1989–2007 (nineteen years), and so on.

In order to make the graphic comparison seen in Figure 1, the compositions in each year of the public-domain song set were matched with the corresponding year a decade later in the copyrighted song set. Thus, compositions from 1913 were paired with 1923, 1914 were paired with 1924, and so on. For example, three songs from 1913 appeared in a total of four movies from 1968–1987 (a rate of 4/60), before the songs fell into the public domain. Those same three songs appeared in twenty movies from 1988–2007 (a rate of 20/60).<sup>59</sup> Therefore, the single song in the data set of copyrighted songs from 1923 was also measured in the same time frame, counting its use in movies from 1968–1987 (denominated “period one”) and then from 1988–2007 (denominated “period two”). The song, “Bugle Call Rag,”<sup>60</sup> appeared in no movies from 1968–1987 (a rate of 0/20) and in four movies from 1988–2007 (a rate of 4/20). For songs from 1914 and 1924, the relevant time periods for measuring uses in movies was 1968–1988 (period one) and 1989–2007 (period two); for songs from 1915 and 1925, from 1968–1989 (period one) and 1990–2007 (period two), and so on.

The aggregate number of times the 1913–1922 songs appeared in movies during the period they were still under copyright was compared to the aggregate number of movie appearances of the 1923–1932 songs in time period one. Then, the aggregate number of times the songs from 1913–1922 appeared in movies after they fell into the public domain was compared with the aggregate number of movie appearances of the 1923–1932 songs in time period two. This comparison allows for a more straightforward explanation of the formal statistical regressions presented in Appendix B, which employ

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<sup>58</sup> FREDRICK WEATHERLY, DANNY BOY (Boosey & Co. 1913); *see also* MATTFELD, *supra* note 35, at 320.

<sup>59</sup> The rate is 4/60 and 20/60 rather than 4/20 and 20/20 because each of the three songs was measured during a twenty-year time period, amounting to a total of sixty measurable song years (three songs x twenty years = sixty song years).

<sup>60</sup> JACK PETTIS, BILLY MEYERS & ELMER SCHOEBEL, BUGLE CALL RAG (Mills Music, Inc. 1923).

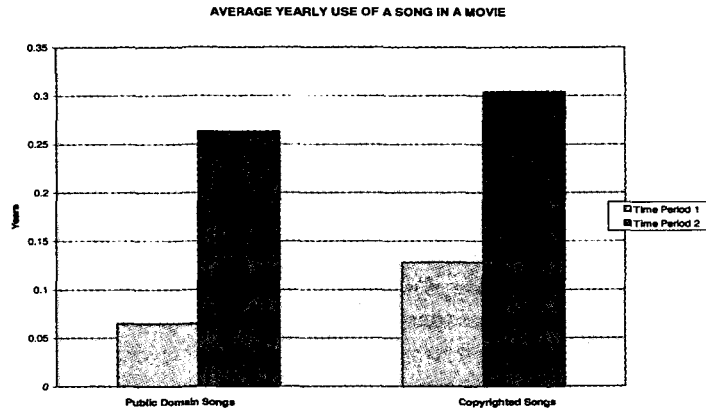
a more robust and uncontroversial, but less narratively engaging, methodology.

## II. DATA ANALYSIS

The goal of the analysis was to answer two questions. First, when compositions from 1913–1922 fell into the public domain, were they exploited at a significantly different rate than while they were still protected by copyright? Second, if the rate of exploitation of those songs changed after they fell into the public domain, did the change indicate signs of over- or under-exploitation in comparison with the rate of exploitation of the copyrighted songs?

### *A. No Evidence of Under-Exploitation*

Before the compositions from 1913–1922 fell into the public domain, they appeared in movies on average at a rate of once every 15.3 years. After they fell into the public domain, they appeared in movies on average at a rate of once every 3.8 years. At first glance, this rate change appears to show a significant increase in exploitation, but the rate change must be compared to the rate of uses of copyrighted songs during the same time period. After all, it is possible that songs from this general era, regardless of their legal status, may be appearing more frequently in recent movies. This, in fact, appears to be the case. During the same comparative time periods, the rate at which copyrighted songs from 1923–1932 appear in movies increased from once every 7.8 years in time period one to once every 3.3 years in time period two. The following graph shows the comparative increase in terms of average yearly use of a song in a movie. The increase for public-domain songs went from .065 uses per year to .263 uses per year; for copyrighted songs it went from .128 uses per year to .304.

*Figure 1*

Since the songs from 1913–1922 fell into the public domain, they have been used in movies an average of four times more frequently than while they were still under copyright. The songs from 1923–1932 also appear more frequently in movies over the same time period. The change for the copyrighted songs, however, was more modest, an increase of a little less than two and one-half times. The formal statistical analyses in Appendix B, not surprisingly, demonstrate that the transition from protected work to unprotected work did not render public-domain compositions under-exploited in relation to works that remained protected by copyright. Thus, public-domain songs from this era do not become orphans that are unavailable for public consumption.

As a check on the data, the relative popularity of the movies appearing in the study was measured in terms of box office receipts. After all, if musical compositions falling into the public domain only appeared in obscure art films, then a strong argument could be made that they were not as widely available as if they had appeared in blockbusters seen by millions. While the compositions from 1913–1922 were still protected by copyright, the nineteen songs appeared in films with a combined gross of \$384 million or an average of about \$20 million per song. Over the same period, the 55 compositions from 1923–1932 appeared in films with an average combined gross of \$3.97 billion, an average of over \$70 million per song, suggesting once again that the compositions from that era have always been more popular, irrespective of copyright status. However, after the compositions from 1913–1922 fell into the public domain, they appeared in films with a combined gross box office of \$2.5 billion, an average of \$131 million per song, a six-fold increase. Over

the same period of time, the average for the songs from 1923–1932 did not quite double, moving from \$3.97 billion to \$7.8 billion, or about \$141 million per song.<sup>61</sup>

Surely some of the rate increase in both sets of songs is due to increased ticket prices over the time period studied.<sup>62</sup> The much higher rate of increase for songs from 1913–1922 nonetheless supports the conclusion of no under-exploitation. In fact, despite the popularity of the songs from 1923–1932, the public-domain songs almost pulled even in box office terms over the last twenty years, averaging \$131 million per song in the public domain, as compared to \$141 million per song under copyright. This may even suggest a positive public-domain effect on exploitation.

The finding of no under-exploitation is generally consistent with my prior study of bestselling fiction from the same period.<sup>63</sup> That research compared the 166 bestselling novels from 1913–1922 with the 167 bestselling novels from 1923–1932, and found that from 1988–2001, novels in the public domain were in print at an insignificantly different rate from novels still under copyright.<sup>64</sup> After 2001, however, the public-domain novels were in print at a significantly higher rate, with significantly more editions per novel.<sup>65</sup> In 2006, the in-print rate for the public-domain novels was 98%, as compared to 74% for the copyrighted novels.<sup>66</sup> A comparison of the subsets of the twenty most enduringly popular novels generated results similar to those seen in the current study.<sup>67</sup>

Although the music composition data show no evidence of under-exploitation, the study does not necessarily prove a positive public-domain effect on availability, like that demonstrated for public-domain books after 2001. A superficial comparison of the rate changes for music exploitation looks significant (4x as compared to 2.5x), but the logistic regressions performed in Appendix B expose the confounding effect of time as a variable, and show that the comparative rates of exploitation of public domain and copyrighted music are not significantly different.

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<sup>61</sup> Gross totals and per song averages were calculated based on statistics obtained at <http://www.imdb.com>.

<sup>62</sup> This would only be true if the rates of movies appearances for both sets of songs tend to parallel each other. This appears to generally be true. See *infra* Fig. 4 in App. B. The box office data would be skewed, for example, if a large chunk of the public domain songs in relation to the songs from 1923–1932 appeared in more recent films with higher-priced admissions.

<sup>63</sup> See Heald, *supra* note 6, at 1040–43.

<sup>64</sup> *Id.* at 1040.

<sup>65</sup> See *id.* at 1040–41.

<sup>66</sup> *Id.* at 1040.

<sup>67</sup> See *id.* at 1044–45.

Why is there a positive public-domain effect with books, but not with musical compositions as they appear in film? One difference may be that the study of bestselling fiction measured the availability of copies of a work.<sup>68</sup> The cost of scanning a book into a computer, printing it, and selling it are quite low; many Dover versions of bestselling classics sell for less than four dollars.<sup>69</sup> If one chooses to publish a copyrighted book instead of a public-domain book, the additional licensing cost will have a significant effect on the overall cost of production. On the other hand, the proportional cost savings of choosing a public-domain song for a movie are likely to be much lower. Because a musical composition, whether it is protected by copyright or not, can only appear in a movie as a derivative work, the director of the film must either hire musicians or singers (or both) in order to realize a version of the composition, or she must obtain a license to use an existing recording of the composition. Creating the derivative work from “scratch” will likely entail significant costs, and the alternative of using an existing recording will likely entail the payment of a significant licensing fee to the owner of the recording. These costs will be incurred *even if* the underlying musical composition is in the public domain.<sup>70</sup>

Using a musical composition in a movie, therefore, is likely to be significantly more expensive than copying a book because it entails the creation of a new derivative work or the purchasing of a license to use a work created by someone else. A film director can save some money by telling her musical director to choose a public-domain composition for the score,<sup>71</sup> but the savings will be proportionally smaller than those enjoyed by the book publisher. Because of these marginal savings, it is unsurprising that public-domain musical compositions are not exploited at a significantly higher rate than protected music.<sup>72</sup>

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<sup>68</sup> See *id.* at 1039–45.

<sup>69</sup> See, e.g., Amazon.com, Dover Literature & Fiction: Books, <http://www.amazon.com> (last visited Sept. 20, 2009) (click on “Books”; run an “Advanced Search” for publisher: “Dover” and subject: “Literature & Fiction”).

<sup>70</sup> Sound recordings of public domain compositions are independently protectable under 17 U.S.C. § 106(6) (2006); *cf. id.* § 106(2) (establishing separate protection for all derivative works, including musical compositions).

<sup>71</sup> The cost of paying a royalty to the owner of the copyright in the composition will be saved.

<sup>72</sup> They are exploited at a higher rate, but the difference is not statistically significant. See *infra* App. B.

### *B. No Evidence of Over-Exploitation*

Two sorts of over-exploitation arguments have been offered by those who worry about what happens to works when they fall into the public domain. First, works may simply be overused and worn out,<sup>73</sup> like a song we have heard so frequently we do not want to hear it again. Second, inappropriate uses, even if infrequent, may “recode” the original meaning of a work,<sup>74</sup> debase it, or otherwise make it less valuable to consumers. The examples most frequently given involve uses of copyrighted fictional characters in new pornographic works.<sup>75</sup>

#### *1. No Evidence of Worn-Out Songs*

As noted earlier, each song in the public-domain data set appears in a movie an average of once every 3.8 years; each song in the copyrighted data set appears in a movie an average of once every 3.3 years. Appendix B shows that these rates are statistically the same. This result makes it very difficult to argue that valuable songs need owners in order to prevent them from being worn out and devalued. If copyright owners are willing to license their compositions at a higher rate than public-domain compositions are used, then the evidence against over-exploitation seems conclusive.

Even the most intense periods of usage of the public-domain songs, *Danny Boy*,<sup>76</sup> with nine movie appearances between 1993 and 2001, and *After You’ve Gone*,<sup>77</sup> with nine movie appearances between 1996 and 2006, do not outstrip the periods of most intense usage for compositions protected by copyright. For example, in the 1930s, *Sweet Georgia Brown*<sup>78</sup> appeared in fifteen movies; *Am I Blue*?<sup>79</sup> in seventeen movies; and *Happy Days Are Here Again*<sup>80</sup> in thirty-four movies. More recently, the Irving Berlin classic *Blue Skies*<sup>81</sup> appeared in ten movies from 1994–2004; *Star Dust*<sup>82</sup> appeared in ten

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<sup>73</sup> See Landes & Posner, *supra* note 1.

<sup>74</sup> See Hughes, *supra* note 10, at 923–26.

<sup>75</sup> See LIEBOWITZ & MARGOLIS, *supra* note 10, at 5–6 (speculating about pornographic tales involving Dr. Seuss’s character the Grinch).

<sup>76</sup> FREDRICK WEATHERLY, *DANNY BOY* (Boosey & Co. 1913).

<sup>77</sup> HENRY CREAMER & TURNER LAYTON, *AFTER YOU’VE GONE* (Broadway Music Corp. 1918).

<sup>78</sup> BEN BERNIE, MACEO PINKARD & KENNETH CASEY, *SWEET GEORGIA BROWN* (Jerome H. Remick & Co. 1925).

<sup>79</sup> GRAND CLARK & HARRY AKST, *AM I BLUE?* (M. Witmark & Sons 1929).

<sup>80</sup> JACK YELLEN & MILTON AGER, *HAPPY DAYS ARE HERE AGAIN* (Ager, Yellen & Bornstein, Inc. 1929).

<sup>81</sup> IRVING BERLIN, *BLUE SKIES* (Irving Berlin, Inc. 1927).

<sup>82</sup> MITCHELL PARISH & HOAGY CARMICHAEL, *STAR DUST* (Mills Music, Inc. 1929).

movies in the 1990s; and *Dream a Little Dream of Me*<sup>83</sup> appeared in ten movies from 1995–2005.<sup>84</sup> Copyright owners seem to be willing to license their compositions at rates equal to or exceeding those of the most intensely used public-domain compositions. Thus, when a song falls into the public domain, the data provides no evidence that it will be over-exploited and worn out by moviemakers.

## 2. Debased Works?

Even if a song is not subject to overly frequent use, some worry that a handful of “inappropriate” uses might debase the value of the original work, rendering it less desirable for consumption.<sup>85</sup> If public-domain songs have been subjected to damaging uses, however, one would expect them to be used less frequently in movies thereafter. After all, a rational film director would not want to alienate her audiences with a composition that had been previously debased. Evidence of debasement should therefore show up as a progressive decrease in demand for public-domain music as compared to copyrighted music from the same era. The data as a whole show no evidence of this, but the number of movie uses in any particular year is too small to measure accurately whether any particular public-domain song has been damaged, as such damage might be masked by the song’s inclusion in a larger set.

Evidence from my previous study of bestselling fiction, however, provides some interesting evidence on individual works. In the seventy-fifth year after publication, the twenty most enduring popular works from 1913–1922 were in print an average of 4.7 editions per title.<sup>86</sup> In the eightieth year after publication, the average was nine editions per title, and by year eighty-five, it rose to 13.4 editions per title.<sup>87</sup> By the year 2006, an average of 26.6 editions per title were in print.<sup>88</sup> The data demonstrate no evidence that pervasive inappropriate uses have reduced the attractiveness of the works for production and delivery to the public. The story is the same when one looks at the individual titles. Eighteen of the twenty titles were in print in more editions in year eighty after publication than in year seventy-five.<sup>89</sup>

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<sup>83</sup> GUS KAHN, W. SCHWANDT & F. ANDREE, *DREAM A LITTLE DREAM OF ME* (Davis, Coots & Engel, Inc. 1931).

<sup>84</sup> See *infra* App. B.

<sup>85</sup> See sources cited *supra* note 10.

<sup>86</sup> See *infra* App. C (detailing previously unpublished data).

<sup>87</sup> *Id.*

<sup>88</sup> *Id.*

<sup>89</sup> See *id.* The exceptions are *Pollyanna* (1913), by Eleanor Porter, which was published in five editions in year seventy-five after publication and only four editions in year eighty, and *Scaramouche* (1921), by Rafael Sabatini, which was published in five editions in year



All twenty experienced an increase from year eighty after publication to year eighty-five, and all twenty experienced an increase in the number of available editions from year eighty-five after publication to the year 2006.<sup>90</sup> Moreover, the steepness of the upward sloping curve of editions exceeds that of copyrighted works from the same era over the same periods.<sup>91</sup> This is not to assert, of course, that there have been no shocking uses of either the songs or the books studied. As discussed below, producer and consumer self-regulation may explain why works are likely safe from even pornographic uses.

### III. THE EFFICIENT EXPLOITATION DEBATE

Given the lack of empirical support, the persistence of claims that value dissipates when works fall into the public domain seems curious. In this final section, I explore the paradigmatic examples of inefficient exploitation that have been offered, and suggest under what conditions problems might occur. Previous skeptics have argued that even if value is dissipated, we should not worry when it results from the natural interaction of market forces.<sup>92</sup> Taking a different tack, I explore below why value may be unlikely to be dissipated at all when works fall into the public domain.

#### A. Under-Exploitation

In my previous work, I identified three conditions that might justify extending copyright protection to an existing work to prevent its under-exploitation: “(1) the cost of making the initial copy of a work available to the public is high; (2) the cost to free-riders of making subsequent copies is low; and (3) the newly available work

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seventy-five after publication and only in three editions in year eighty. *Id.* By 2006, *Pollyanna* was available in thirty different editions and *Scaramouche* in eighteen. *Id.*

<sup>90</sup> See *id.*

<sup>91</sup> See Heald, *supra* note 6, at 1045 fig.3.

<sup>92</sup> See Karjala, *supra* note 23, at 1072 (criticizing Landes and Posner and arguing that “[a] change in the demand curve for a work, . . . while showing a change in how much society values that particular work relative to whatever else is available, says nothing about the total value to society of all the goods and services available”). Karjala notes that if the public’s taste for buggies shifts to cars, then “[b]uggies are indeed less valuable, but society has incurred no economic loss.” *Id.* Mark Lemley notes that competition changes consumption patterns with durable goods, and should also do so with creative goods formerly protected by copyright. See Lemley, *supra* note 11, at 135 (“Our normal supposition is that the invisible hand of the market will work by permitting different companies to compete with each other [to produce a good the public wants].”); cf. Heald, *supra* note 6, at 1054 (“If we trust the market to produce the optimal amount of tangible goods like string, bubble gum, and diet soda without entrusting central control of those products to a single authority, why should we treat intangible public goods like *My Ánuonia*, the color yellow, or the word ‘coffee’ any differently?”).

does not incorporate independently protectable material.”<sup>93</sup> The test had its genesis in arguments over whether old public-domain films needed owners in order to ensure their preservation and distribution.<sup>94</sup> If an old film requires a significant expenditure to repair, and yet could easily be copied and distributed without authorization once it is in digital form, the owner of the physical copy of the film may lack an adequate financial incentive to restore the film. This scenario is worrisome, however, only if the newly restored film contains no independently protectable new material, like a soundtrack added (a common practice) to an old silent film. Packaging a public-domain work so that it cannot be copied without infringing rights in newly incorporated material can effectively prevent free riding.<sup>95</sup> Such practices necessitate the inclusion of condition three, above.

The three-factor test should be updated in light of recent studies. For example, a study undertaken for the Library of Congress demonstrates that non-owners have been making historic sound recordings available in digital form at a higher rate than their owners.<sup>96</sup> In fact, there is some indication that non-owners may more efficiently husband aging films.<sup>97</sup> A fourth proviso should therefore be added before a conclusion of market failure is reached: (4) owners are, in fact, more willing than non-owners to preserve and distribute the work.

When the four conditions are met, perhaps the public should be concerned. It seems clear, however, that the vast majority of books, music, films, computer programs, and other works that are cheap and easy to reproduce generally do not meet these conditions.<sup>98</sup> In general,

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<sup>93</sup> Heald, *supra* note 6, at 1052–53.

<sup>94</sup> See Lemley, *supra* note 11, at 134 & n.16 (providing additional authority that makes similar arguments).

<sup>95</sup> The estate of D.H. Lawrence employs this technique, publishing authorized editions of public domain works like *Sons and Lovers*, by packing them with new commentary, footnotes, and introductory material. See Heald, *supra* note 6, at 1052 n.72 (citing John Sutherland, *The Great Copyright Disaster*, LONDON REV. BOOKS, Jan. 12, 1995, at 3).

<sup>96</sup> See TIM BROOKS, NAT’L RECORDING PRES. BD., LIBRARY OF CONGRESS, SURVEY OF REISSUES OF U.S. RECORDINGS 7 & tbl.4, 8 (2005) (copyright owners have made only an average of 14% of popular recordings from 1890–1964 available on CD, while non-owners have made 22% of them available to the public on CD).

<sup>97</sup> See Lemley, *supra* note 11, at 137; *id.* at 137 & n.27 (“According to the Internet Movie Database, 36,386 motion picture titles were released from 1927 to 1946. Of those, only 2,480 are currently available on videotape; only 871 are available on DVD; only 114 are available on Pay-Per-View/TV; and only thirteen are available in theaters.” (quoting Deirdre K. Mulligan & Jason M. Schultz, *Neglecting the National Memory: How Copyright Term Extensions Compromise the Development of Digital Archives*, 4 J. APP. PRAC. & PROCESS 451, 472 (2002))). “By contrast, just one archive—the Prelinger Archive—has over 27,000 public domain films and has put more than 1,100 online.” *Id.* at 137 n.27 (citing Rick Prelinger, Prelinger Archives, <http://www.prelinger.com> (last visited Feb. 7, 2004)).

<sup>98</sup> See Heald, *supra* note 6, at 1051–53.

the copyright term seems adequate if it is long enough to stimulate the creation of the work in the first instance. Extra extension, like that provided by the Copyright Term Extension Act, is probably not justified except in a tiny fraction of cases.

In the absence of the four conditions, we should not expect to see under-exploitation problems when a work falls into the public domain. Applying the factors to musical compositions as they appear in movies helps explain why. Unlike making a copy of a book, the first condition in favor of ownership may often be met. This is because, as noted above, a musical composition as it appears in a movie is a derivative work that may be quite costly for the music director to use and make available to the public in a new form.<sup>99</sup> Condition two is also probably met: if the movie is in a digital format, it will be quite easy to copy. Condition three, however, is not met, and songs in movies provide a nice example of the salience of that condition. A musical composition as it abides in a soundtrack is surrounded by independently protected work, like the script, the cinematography, and the sound recording itself, whose copyright is owned by its producer. The musical composition *per se*, the sheet music, cannot be easily taken without offending the rights of copyright owners of neighboring works. The realization of the old public-domain work within a new protected format means that the filmmaker has few real worries about competitors free riding off of his labor. In other words, the public-domain status of the underlying musical composition should not pose a threat to its continued exploitation, which is precisely what the data analyzed above shows.

### *B. Over-Exploitation: Worn-Out Works and Inappropriate Uses*

Trademarks provides a nice example of how both sorts of over-exploitation fears discussed in Part II become operationalized in law. One of the primary bases for the enactment of the Federal Trademark Anti-Dilution Act<sup>100</sup> was the fear that unauthorized uses of a trademark would blur its ability to identify the source of its owner's goods or services.<sup>101</sup> Even if a new "KODAK Café" or "EXXON Telephone" were of impeccable quality, Congress feared that a proliferation of uses would render marks like KODAK or EXXON less able to call to mind their original owners. Overuse might literally wear out the marks. I am currently collecting data on whether such

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<sup>99</sup> See *supra* notes 70–72 and accompanying text.

<sup>100</sup> 15 U.S.C. § 1125(c) (2006).

<sup>101</sup> See Gerard N. Magliocca, *One and Inseparable: Dilution and Infringement in Trademark Law*, 85 MINN. L. REV. 949, 962 (2001).

unauthorized uses actually occurred prior to anti-dilution protection, but there is little doubt that the “wearing out” theory motivated Congress to pass the law in 1996.<sup>102</sup>

On the other hand, traditional trademark infringement provides a good example of how inappropriate uses can directly alter, as opposed to just wear out, the meaning of a symbol.<sup>103</sup> In fact, experts routinely testify about the amount of pecuniary damage done to the value of a trademark when consumers are confused by an infringer.<sup>104</sup> If a garment maker sells shirts under the trademark “EXCELSIOR” and establishes a reputation for a high-quality product, a subsequent user of the trademark on inferior goods will not only lower the trademark’s value to the garment maker, but also make the word “EXCELSIOR” less usable to the public. Before the infringement, “EXCELSIOR” meant high-quality shirts; afterwards, it does not. If an infringer successfully confuses consumers, then the public has been robbed of a valuable mnemonic device. The mark is debased.

Given the data presented in Part II, we need to ask why these two concerns might not have the same traction in the context of copyrighted works.

### *1. Worn-Out Songs? Worn-Out Anything?*

As noted in Part II, in the context of musical compositions in movies, there appears to be no evidence that public-domain songs are wearing out at a higher rate than their copyrighted counterparts. But what about other media contexts, such as songs heard on the radio or in television advertising or books available in multiple editions? Is it likely that public-domain songs are being worn out via overexposure in non-movie media, or that books are being worn out due to their pervasive reproduction?

Landes and Posner, as well as Liebowitz and Margolis, recognize that congestion externalities usually are not thought to be a problem with works, like those typically protected by copyright law, that have the characteristics of non-rivalrousness and inexhaustibility.<sup>105</sup> They understand that a song can be sung by one or two or one thousand people at the same time (demonstrating non-rivalrousness), over and

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<sup>102</sup> See *id.* at 961–63.

<sup>103</sup> The cause of action for dilution via tarnishment of a mark’s image is designed to protect a mark from altered meanings. See 15 U.S.C. § 1125(c).

<sup>104</sup> See GORDON V. SMITH, TRADEMARK VALUATION 199–200, 212–14 (1997) (discussing the difficulties inherent in expert attempts to quantify monetary relief in trademark infringement cases).

<sup>105</sup> See Landes & Posner, *supra* note 1, at 485; LIEBOWITZ & MARGOLIS, *supra* note 10, at 5.

over again, day after day, without wearing out the song (demonstrating inexhaustibility). Since the marginal cost imposed by each additional user is zero, limiting access would result in a deadweight loss. In fact, if one defines the value of a good in terms of its continued usability, then overuse is theoretically impossible with pure public goods. Landes and Posner, and Liebowitz and Margolis, however, argue that the relevant measure of value is market value, not usability, and therefore posit that certain sorts of marginal additional uses of a public good may impose positive costs.<sup>106</sup> For example, if dozens of advertisers all chose the same song to market their products on television, the public might tire of the tune, and demand for it would drop, reducing its market value. We might, they speculate, see a musical version of the tragedy of the commons.<sup>107</sup>

With songs, this eventuality seems unlikely. First, the vast majority of media airplay occurs through broadcasters' acquisition of an ASCAP license. The standard license in no way restricts the number of times a song can be broadcast over any period of time.<sup>108</sup> In other words, copyright owners, acting through their primary agent, the American Society of Composers, Authors and Publishers, seem utterly uninterested in limiting the airplay of their compositions. Broadcasters, not copyright owners, determine how frequently the public should hear a song. Presumably, broadcasters voluntarily choose not to overplay a song for fear of alienating the public or reducing the value of a good they would like to offer in the future. Overplaying a musical composition, whether it is copyrighted or in the public domain, is bad business, a fact that copyright owners seem to recognize by not restraining broadcasters.<sup>109</sup> In the broadcasting context, public-domain songs seem no more likely to be worn out, therefore, than copyrighted songs. It seems specious, at least as to broadcasting, to argue that each song needs an owner to limit its use.

That leaves "background" music used in advertising, films, and television, which is not licensed through ASCAP.<sup>110</sup> My data casts

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<sup>106</sup> See Landes & Posner, *supra* note 1, at 485–86; LIEBOWITZ & MARGOLIS, *supra* note 10, at 9–10.

<sup>107</sup> See Landes & Posner, *supra* note 1, at 485–86.

<sup>108</sup> See Am. Soc'y of Composers, Authors & Publishers, 2004 Radio Station License Agreement (2004), [http://www.ascap.com/licensing/radio/RMLC\\_License.pdf](http://www.ascap.com/licensing/radio/RMLC_License.pdf) (exemplifying a standard license agreement for radio stations).

<sup>109</sup> See *id.*

<sup>110</sup> Such licenses must be negotiated directly with the copyright owner. See The Harry Fox Agency, Inc., What Does HFA Do?, <http://www.harryfox.com/public/hfaPurpose.jsp> (last visited Sept. 22, 2009) (stating that a licensing agency does not "[i]ssue licenses for the use of music in advertising, movies, and TV programs (aka synchronization licensing or 'synch') . . . . To obtain a synch license, print right, or sample clearance, you need to contact the music publisher directly").

doubt on overuse of public-domain music in movies, but over-exploitation seems unlikely in other contexts as well. With a virtually infinite commons of music to choose from, advertisers are unlikely to risk alienating the public by choosing the same theme music as too many of their peers. Decades of watching television and listening to radio support this economic intuition.<sup>111</sup> The traditional tragedy of the commons analogy may be inadequate to capture the market for something like music in advertising.

To illustrate the tragedy of the commons, economists tell the story of a common field that is subject to overgrazing: no one owns the field and, therefore, no one has the proper incentive to maximize its value.<sup>112</sup> In fact, empirical evidence shows an increase in agricultural production in England when common fields were enclosed.<sup>113</sup> An advertising jingle, however, presents a significantly different situation. Unlike the farmer who has limited options as to where to graze his cattle, the advertiser has thousands of songs to choose from. A farmer with a thousand choices of equally cheap and desirable fields on which to graze his cattle would rationally choose not to overgraze any particular one. It would be pointless and might cost him in the future. Overgrazing in the presence of numerous choices of fresh fields might even impose a reputational cost. So too with advertisers choosing music to sell their products. Advertisers have no reason to overgraze when musical options are plentiful, and, more importantly, when the costs associated with annoying the public are too high. Overuse of promotional music, as with broadcast music, would be a bad marketing decision that is unlikely to need regulation.

Outside of the context of background music, the role of consumer choice may also help explain the absence of overused works. Consider books, which, unlike trademarks and sometimes songs, require an element of consumer choice in their consumption. One can imagine the public getting tired of encountering a ubiquitous song or getting tricked by a misused trademark, but it is difficult to see how the multiplicity of editions of a book could make the public sick of the story. For example, *My Ántonia* (1918), by Willa Cather, is available in at least fifty different editions by at least fifty different publishers, and exists in many formats (cheap paperback, trade paper, hard cover, large print, curricular unit, e-book, audio tape and audio

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<sup>111</sup> Two pieces that have come to annoy me in commercials, Gershwin's *Rhapsody in Blue* and the famous choral section from Orff's *Carmina Burana*, are still under copyright.

<sup>112</sup> See Hardin, *supra* note 8.

<sup>113</sup> Robert C. Ellickson, *Property in Land*, 102 YALE L.J. 1315, 1392 (1993) (noting that the increased productivity occurred because enclosure "freed up former commonses and wastes for cropgrowing").

CD) at prices as low as \$2 and as high as \$108.<sup>114</sup> Yet, no consumer is forced to unwillingly encounter the story or its characters. If a consumer encounters the same song in the advertising for fifty products, he or she may get tired of hearing it. The song cannot be avoided without turning off the television, switching off the radio, or avoiding places that broadcast ads. The consumer of books, however, will never be forced to consume even a single one of the fifty editions of *My Ántonia*. It is difficult to see a work ever wearing out in a situation when the public only encounters the work when it chooses to do so. Consumer choice and avoidance can be an effective form of non-governmental regulation that prevents a work from wearing out.

As the above analysis of songs and books suggests, in order to determine the general conditions under which concerns of over-exploitation might be justified, one must consider the likelihood of private regulation by both producers and consumers of works. Consistent with the findings in this study, we should expect to find congestion in markets for intangible goods potentially protected by copyright only when three conditions exist: (1) substitutes for the good are not cheap and plentiful; (2) additional subsequent uses of the good entail no significant reputational or other costs to the producer (e.g., by alienating consumers); and (3) consumption of the good by consumers cannot easily be avoided by the consumers themselves (e.g., some advertising uses).

## 2. Debased Songs? Debased Anything?

The data analyzed in Part II suggests that public-domain musical compositions appear in movies with about the same frequency as one would predict similar copyrighted compositions to appear. This result suggests the songs have not been debased by inappropriate uses that render them no longer fit for public consumption.<sup>115</sup> My earlier study of fiction even more strongly suggests this sort of congestion is lacking.<sup>116</sup> Yet, worry over inappropriate uses debasing works persists. Although this article cannot claim debasement never occurs, a closer look at the conditions of potential debasement reveals that copyright extensions are not an effective means of addressing the worry.

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<sup>114</sup> See, e.g., Booksinprint.com, *My Ántonia*, [www.booksinprint.com/bip/](http://www.booksinprint.com/bip/) (last visited Sept. 22, 2009) (search "QuickSearch" for title: *My Ántonia*; then follow "My Ántonia" hyperlink; then follow "Other Formats" hyperlink).

<sup>115</sup> See *supra* Part II.B.2.

<sup>116</sup> See Heald, *supra* note 6, at 1053–54.

*a. Defining Debasement*

Determining when a work might be debased, and whether we should be concerned, requires defining the possible harms that might be at issue. There are four main possibilities:

i) *The relevant harm caused by debasement is a loss in the market value of the work.* In other words, debasement occurs when consumer demand declines due to a damaging use.

ii) *The relevant harm is a net loss in public welfare.* If adequate substitutes exist for a good whose value is destroyed, then there is no net loss in welfare terms. Thus, even if the market value of a work declines to zero, harm may not necessarily occur. For example, if 100,000 fewer Mickey Mouse t-shirts are sold after a debasing use, but 100,000 more Goofy t-shirts are sold as a result of the same use, there may be no net loss in welfare.

iii) *The relevant harm is psychic damage caused to the artist.* This harm might simply be included in measuring the net effect on public welfare, but advocates of moral rights argue that the artist's right to control sometimes takes precedence over public welfare.

iv) *The relevant harm is the recoding of the settled cultural meaning of the work.* Again, this harm might be cast in public welfare terms, but some commentators suggest that the original meaning of a work may be worth preserving, even if subsequent changes in meaning might be welfare enhancing.<sup>117</sup>

The second definition, which requires a diminishment in net public welfare, seems most appropriate for several reasons. For the purposes of this paper, the possibility of debasement is most relevant as a theoretical justification for extending the copyright term of existing works, not for justifying other laws that might vindicate the European notion of moral rights. As the Supreme Court has explained on many occasions, the primary justification for copyright law in the United States is utilitarian, a balance of costs and benefits designed to enhance public welfare.<sup>118</sup> The wisdom of term extensions is most plausibly measured by this utilitarian yardstick. That said, net public welfare is difficult to measure. Therefore, the first definition, lost market value, may be a good practical proxy, subject to evidence of a substitution effect that indicates no net welfare loss.

But what about psychic harms to artists or the possible recoding of a work's meaning? First, copyright initially vests artists with the

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<sup>117</sup> See Hughes, *supra* note 10, at 940–42 (asserting the importance of a cultural object having “a stable, commonly understood set of meanings,” rather than having meanings that are subject to significant non-owner manipulation).

<sup>118</sup> See, e.g., *Sony v. Universal*, 464 U.S. 417 (1984); *Mazer v. Stein*, 347 U.S. 201 (1954).



power to prevent almost all debasement and recoding through the right to prepare derivative works and the reproduction right.<sup>119</sup> Artists are given strong exclusionary rights. If an artist retains his or her copyright, the term of protection, now a minimum of ninety-five years, almost certainly lasts the life of the artist.<sup>120</sup> Beyond that period, the argument to protect the dead artist's psyche is weak. Even if we cared about dead artists' psyches, their copyrights are almost always transferred to a third-party publisher as a condition of publication, so term extension would typically provide no solace to aggrieved artists, just a bonus to the copyright owner.

As far as harm caused by recoding goes, copyright already stabilizes the meaning of the work while it is controlled by a single owner, under the old statute for a period of seventy-five years (now ninety-five years). It is difficult to see why the law should not at some point in time invite competition in the market for meanings. If a meaning is changed, hasn't the market spoken as to the worthiness of the new meaning? Second, initial meanings are likely to be extremely durable. Meanings do not change easily, although they can proliferate. Consumers can keep two meanings in their heads, potentially multiplying the work's value. I have seen multiple interpretations of many pieces of music and dramatic works. My initial impression co-exists with subsequent impressions. Were it not so, my children's early music recitals would have destroyed my ability to appreciate versions of the same works by famous professionals.

Finally, conventional interpretations of the First Amendment suggest that absolute deference to authorial control and settled meanings are not embedded in copyright law.<sup>121</sup> First, a parody, one of the most threatening and debasing forms of derivative work, is constitutionally privileged.<sup>122</sup> No amount of artistic outrage and angst can prevent a good parody from calling a work's value into question before the public eye and ear. Second, important theories of the First Amendment endorse a policy of competition for meaning and truth.<sup>123</sup> For example, the Constitution does not tolerate the suppression of works that destabilize our understanding of the Civil War or the Jim Crow Era or McCarthyism. It encourages tremendous competition

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<sup>119</sup> 17 U.S.C. § 106(1)–(2) (2006).

<sup>120</sup> See Heald, *supra* note 6, at 1033 (noting that works published in 1923 will have copyright protection until 2018).

<sup>121</sup> See *Campbell v. Acuff-Rose Music, Inc.*, 510 U.S. 569 (1994).

<sup>122</sup> *Id.*

<sup>123</sup> See, e.g., *Abrams v. United States*, 250 U.S. 616, 630 (1919) (Holmes, J., dissenting) (discussing the importance of the "marketplace of ideas").

over the meaning of our most treasured national moments and national heroes. Why should the Reagan presidency be open for constant reappraisal but not *Porgy and Bess*,<sup>124</sup> a work that would have fallen into the public domain in 1991 but for the passage of term extensions?

*b. When Is Public Welfare Likely to be Harmed?*

As suggested earlier, unless unwilling viewers and listeners are forced to consume a work, a diminishment in net public welfare seems unlikely. For this reason, the most common example of debasement seems inapt. Most commentators who worry about debasement point to unauthorized uses of fictional characters as his or her prime example.<sup>125</sup> The entire debate seems to turn on the effect of having unauthorized porn movies starring Mickey Mouse<sup>126</sup> or Superman.<sup>127</sup> Those concerned about unauthorized pornography do not seem aware of the vast amount of unauthorized “inappropriate” works that have already been produced. A quick search of the Internet Adult Film Database ([www.iafd.com](http://www.iafd.com)) reveals six pornographic movies with “Cinderella” in the title, including *Cinderella in Chains* and its two sequels, seven with Snow White in the title, and a whopping twenty-three featuring Santa Claus.<sup>128</sup> Searches on the same database of “Apollo” and “Zeus” turn up numerous examples of gay cinematic achievement.<sup>129</sup> Unauthorized porn fan fiction also abounds, starring such characters as Harry Potter, Captain Kirk and Mr. Spock, and Starsky and Hutch.<sup>130</sup> Is there a serious argument that Cinderella, Santa, mythical Greek Gods, Harry Potter, and Star Trek characters are worth less now than before these works were produced?

Probably not. Consumer and producer self-regulation likely combine to nullify the potential negative effects of unauthorized uses of fictional characters. Consumers who would be offended by a porno Mickey will not purchase a movie or read the fan fiction setting forth his daring new exploits. Those who deliberately seek out the new

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<sup>124</sup> GEORGE GERSHWIN & IRA GERSHWIN, *PORGY AND BESS* (Gershwin Publishing Corp. 1935).

<sup>125</sup> See, e.g., Kozinski, *supra* note 10; LIEBOWITZ & MARGOLIS, *supra* note 10, at 5–6.

<sup>126</sup> Cf. Landes & Posner, *supra* note 1, at 487–88 (arguing that the passage of Mickey Mouse into the public domain would cause the character’s commercial value to plummet).

<sup>127</sup> See Green, *supra* note 10, at 925.

<sup>128</sup> Internet Adult Film Database, Movie Titles, [www.iafd.com](http://www.iafd.com) (last visited Nov. 23, 2009) (Search for “Cinderella,” “Snow White,” or “Santa”).

<sup>129</sup> *Id.* (Search for “Apollo” or “Zeus”).

<sup>130</sup> See Wikipedia.com, Slash fiction, [http://en.wikipedia.org/wiki/Slash\\_fiction](http://en.wikipedia.org/wiki/Slash_fiction) (last visited Sept. 24, 2009).

Mickey will do so because the porn version enhances Mickey's value to them, rather than detracts from it. Movies, books, and images that must be deliberately sought out by consumers are unlikely to negatively affect the value of the fictional characters portrayed therein.

This observation suggests that goods, like t-shirts, that cannot be avoided by the public when the wearer strolls down the street might pose the most serious problem. This danger is probably lessened by the natural reluctance of producers and distributors to sell offensive material. The GAP is unlikely to start selling a t-shirt portraying Mickey and Goofy in bed together. In other words, producer self-regulation, like consumer self-regulation, diminishes the likelihood that serious damage will be done to an iconic character. The Internet, however, provides a venue where the reputation costs of selling offensive items like t-shirts may be low enough to sustain a market. If the GAP will not sell the offensive t-shirt, then someone online might. An Internet purchase might end up being displayed on the chest of someone walking down the street. We could potentially encounter an image portraying Mickey and Goofy in compromising circumstances, despite our best efforts to avoid it.

The number of pedestrians wearing offensive gear, however, is likely to be quite low. There are reputational costs to the wearer that will deter all but a handful of people from displaying such goods in public. And more importantly, Disney will employ its lawyers to prevent the unauthorized sale of its trademarked images.<sup>131</sup> Trademark law provides strong protection against unauthorized uses of franchised fictional characters. Not all characters function as trademarks, however, so the potential for an offensive Cinderella or Santa Claus t-shirt remains a possibility, although the author has never encountered one.

Beyond the t-shirt scenario, one might imagine a song used in an advertisement that creates uncomfortable associations, perhaps "La Marseillaise" used in the background of an attack ad on a euro-friendly politician. Or one might hear "God Save the Queen" sung on the radio in a particularly disrespectful way by Johnny Rotten of the Sex Pistols.<sup>132</sup> Although such uses may appear problematic (putting aside the First Amendment), current law and practice erects

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<sup>131</sup> Disney has acquired trademark protection for thousands of character images. *See, e.g.*, "MICKEY MOUSE," United States Trademark No. 0315056, (filed Sept. 25, 1933) (registered July 17, 1934); "GOOFY," United States Trademark No. 1159124, (filed June 8, 1979) (registered June 30, 1981).

<sup>132</sup> SEX PISTOLS, *God Save the Queen*, on NEVER MIND THE BOLLOCKS, HERE'S THE SEX PISTOLS (Virgin Records 1977).

few hurdles to them. First, music publishers demand that most artists relinquish the right to control the licensing of their works. A song intended as a pro-environmental anthem may well end up in the background of a Hummer commercial despite the objection of the musicians that made it famous. Second, under present copyright law anyone can cover a song by paying the appropriate statutory fee.<sup>133</sup> We currently do not seem too worried that William Shatner might ruin our favorite song for us.

To generalize conditions from the discussion above, debasement of a work not protected by copyright would seem most likely when: (1) consumers must deliberately seek out and consume the good; (2) presenting the good to the consumer entails no reputational or other costs to the producer (e.g., by alienating consumers); (3) public consumption entails no reputational costs to the consumer; and (4) consumption is lawful (e.g., it entails no violation of trademark law, obscenity law or libel). These four conditions should be met so infrequently that the burden of proving over-exploitation should rest squarely on those who claim it is a serious problem worthy of government intervention in the market.

### 3. Remedies

Note that the conditions above are satisfied by the “Marseilleise” and “God Save the Queen” examples. It does not follow, however, that expansive new property rights should be created. First, the regulatory authority might conclude that there is no threat to public welfare. Evidence might show no negative effect on the market value for the potentially debased work. Or despite a loss in market value, a strong substitution effect might be shown. Or, even if recoding is included as a market-based harm, empirical evidence from psychologists, for example, might suggest that consumers are capable of retaining multiple meanings. Most importantly, even in situations where a red flag is raised because the set of stated conditions is met, the regulatory response should be narrowly tailored to the potential harm. If the problem is inappropriate t-shirts, the proper response might come from the FTC in the form of new regulations on sellers. If the problem is a poor fit between commercials and background music, then perhaps artists should be given an inalienable approval right. If the problem is an all-white-cast version of *Porgy and Bess* (such as the one a colleague just saw in Finland), then simple labeling requirements would be most appropriate. Under no circumstances

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<sup>133</sup> See 17 U.S.C. § 115 (2006); U.S. Copyright Office, Mechanical License Royalty Rates, <http://www.copyright.gov/carp/m200a.html> (last visited Dec. 28, 2009).

does blanket copyright term extension, with its well-documented costs to consumers and users of works, seem to be the appropriate response.

### CONCLUSION

This study of the use of popular musical compositions in film suggests that the film market for public-domain music functions as efficiently as the market for copyrighted music without any special governmental intervention, such as retroactive copyright term extension. This confirms similar research conducted on the exploitation of bestselling fiction from the same era.<sup>134</sup> These studies cannot prove that copyright protection beyond that required to stimulate the creation of a work in the first instance is never necessary, but they suggest that the over- and under-exploitation hypotheses are overstated. Surely the time has come to place the burden of proof on those who predict valuable works in the public domain will suffer from serious market failure. Legislation should be based on sound empirical evidence.

In the absence of concrete evidence, we are left with predicting the behavior of rational actors, which indicates that self-regulation by producers and consumers of public-domain goods will discipline the market. Their likely behavior suggests four conditions necessary for under-exploitation and four conditions necessary for over-exploitation. The rare simultaneous occurrence of these conditions demonstrates that any legislative response should be specifically targeted to a very narrow set of works. Blanket term extension to all sorts of works in all sorts of contexts, with its significant attendant costs, cannot be justified by a handful of very narrow, and unproven, hypothetical assumptions.

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<sup>134</sup> See Heald, *supra* note 6.

## APPENDIX A

The song set was compiled based on the popular historical compositions from 1909–1932 listed in Julius Mattfeld's *Variety Music Cavalcade, 1620–1961: A Chronology of Vocal and Instrumental Music Popular in the United States* that appeared in at least four movies from 1967–2007.

Year	Title	Composer(s)
1909	By the Light of the Silvery Moon	Edward Madden; Gus Edwards
1910	Let Me Call You Sweetheart	Beth Whitson; Leo Friedman
1911	Alexander's Ragtime Band	Irving Berlin
1912	It's a Long, Long Way to Tipperary	Jack Judge; Harry Williams
1913	El Choclo	A.G. Villoldo; G.J.S.W.
	Danny Boy	Frederick E. Weatherly
	You Made Me Love You—I Didn't Want to Do It	Joe McCarthy; James V. Monaco
1914	St. Louis Blues	William Christopher Handy
1915	Pack Up Your Troubles in Your Old Kitbag and Smile, Smile, Smile	George Asaf; Felix Powell
1916	Colonel Bogey	Kenneth J. Alfred (pseud. of Major F.J. Ricketts)
	I Ain't Got Nobody	Roger Graham; Spencer Williams & Dave Peyton
	Poor Butterfly (The Big Show)	John L. Golden; Raymond Hubbell
1917	Over There	George Michael Cohan
1918	After You've Gone	Henry Creamer & Turner Layton
1920	Avalon	Al Jolson & Vincent Rose
	Look for the Silver Lining (Good Morning, Dearie)	Bud De Sylva; Jerome Kern
	Whispering	Malvin Schonberger; John Schonberger
1921	The Sheik of Araby (Make it Snappy)	Harry B. Smith & Francis Wheeler; Ted Snyder
1922	Hot Lips	Henry Busse, Henry Lange & Lou Davis
1923	Bugle Call Rag	Jack Pettis, Billy Meyers & Elmer Schoebel

<b>1924</b>	The Man I Love (Strike Up the Band)	Ira Gershwin; George Gershwin
	Tea for Two (No, No, Nanette)	Irving Caesar; Vincent Youmans
<b>1925</b>	Manhattan (Garrick Gaieties)	Lorenz Hart; Richard Rodgers
	Rhapsody in Blue	George Gershwin
	Show Me the Way to Go Home	Irving King
	Sweet Georgia Brown	Ben Bernie, Maceo Pinkard & Kenneth Casey
	Yes Sir, That's My Baby	Gus Kahn; Walter Donaldson
<b>1926</b>	Are You Lonesome Tonight?	Roy Turk & Lou Handman
	Bye Bye Blackbird	Mort Dixon; Ray Henderson
	La Cumparsita	G.H. Matos Rodriguez; Vincenzo Billi
	Someone to Watch Over Me (Oh, Kay!)	Ira Gershwin; George Gershwin
<b>1927</b>	The Best Things in Life Are Free (Good News)	Bud G. De Sylva, Lew Brown & Ray Henderson
	Blue Skies	Irving Berlin
	My Blue Heaven	George Whiting; Walter Donaldson
<b>1928</b>	I Can't Give You Anything But Love	Dorothy Fields; Jimmy McHugh
	I Wanna Be Loved By You (Good Boy)	Bert Kalmar; Herbert Stothart & Harry Ruby
	If I Had You	Ted Shapiro, Jimmy Campbell & Reginald Connelly
	Let's Do It (Paris)	Cole Porter
	Let's Misbehave (Paris)	Cole Porter
	Makin' Whoopee!	Gus Kahn; Walter Donaldson
	Sweet Lorraine	Mitchell Parish; Cliff Burwell
	When You're Smiling—the Whole World Smiles with You	Mark Fisher, Joe Goodwin & Larry Shay
<b>1929</b>	Ain't Misbehavin' (Hot Chocolates)	Andy Razaf; Thomas Waller & Harry Brooks
	Am I Blue?	Grand Clarke; Harry Akst
	Bolero	Maurice Ravel
	Happy Days Are Here Again	Jack Yellen; Milton Ager
	Honeysuckle Rose (Load of Coal)	Andy Razaf; Thomas Waller

	Singin' in the Rain	Arthur Freed; Nacio Herb Brown
	Star Dust	Mitchell Parish; Hoagy Carmichael
	You Do Something to Me (Fifty Million Frenchmen)	Cole Porter
<b>1930</b>	Beyond the Blue Horizon	Leo Robin; Richard Whiting & W. Franke Harling
	Body and Soul (Three's a Crowd)	Edward Heyman, Robert Sour & Frank Eyton; John W. Green
	Embraceable You (Girl Crazy)	Ira Gershwin; George Gershwin
	Exactly Like You	Dorothy Fields; Jimmy McHugh
	Georgia On My Mind	Stuart Gorrell; Hoagy Carmichael
	Get Happy	Ted Koehler; Harold Arlen
	I Got Rhythm (Girl Crazy)	Ira Gershwin; George Gershwin
	Just a Gigolo	Irving Caesar; Leonello Casucci
	Love for Sale (The New Yorkers)	Cole Porter
	My Ideal	Leo Robin; Richard Whiting & Newell Chase
	On the Sunny Side of the Street	Dorothy Fields; Jimmy McHugh
	Sleepy Lagoon	Jack Lawrence; Eric Coates
	Three Little Words	Bert Kalmar; Harry Ruby
	You Brought a New Kind of Love to Me	Sammy Fain, Irving Kahal & Pierre Norman
<b>1931</b>	Dancing in the Dark (The Band Wagon)	Howard Dietz; Arthur Schwartz
	Dream a Little Dream of Me	Gus Kahn; W. Schwandt & F. Andree
	I Found a Million Dollar Baby—In a Five and Ten Cent Store (Billy Rose's Crazy Quilt)	Billy Rose & Mort Dixon; Harry Warren
	Life is Just a Bowl of Cherries	Lew Brown & Ray Henderson
	Minnie, the Moocher—The Ho De 'Ho Song	Cab Calloway & Irving Mills



	Mood Indigo	Duke Ellington, Irving Mills & Albany Bigard
	Out of Nowhere	Edward Heyman; John W. Green
<b>1932</b>	It Don't Mean a Thing	Irving Mills; Duke Ellington
	Night and Day	Cole Porter
	You're Getting to Be a Habit With Me	Al Dubin; Harry Warren

## APPENDIX B

Compiled by Professor Jaxk Reeves and Kun Xu  
Statistics Department, University of Georgia

## I. DATA SET—THE POPULAR SONGS

*A. Description*

This set of data consists of seventy-four songs, composed in 1909–1932, which appeared at least four times in films from 1968–2007. The most popular songs, *Star Dust* and *La Cumparsita*, both appeared in film seventeen times in our study period. Nineteen of these songs were published between 1909 and 1922. These nineteen songs are all currently in the public domain, but were not necessarily in the public domain during the entire forty-year period of this investigation (1968–2007). The other fifty-five songs were published between 1923 and 1932, and are not yet in the public domain. This data set of seventy-four songs, where  $K \geq 4$ , is used for most of the analysis, but similar analyses using thresholds if  $k \geq 3$ ,  $k \geq 2$ , and  $k \geq 1$  are also included. Table 1 below contains a sample of the data.

*Table 1. Popular Songs*

SONG	COMPO SITION	PUB YR	EXP	TOT	T 1968	T 1969	T 1970	...	T 2006	T 2007
1	By the light of the ...	1909	1984	4	0	0	0	...	0	0
2	Let me call you sweetheart	1910	1985	4	0	0	0	...	0	0
3	Alex- ander's Ragtime Band	1911	1986	5	0	0	0	...	0	0
4	It's a long way to Tipperary	1912	1987	4	0	0	1	...	0	0
5	El Choclo	1913	1988	6	1	0	0	...	0	0
6	Danny Boy	1913	1988	11	0	0	0	...	0	0
...	...	...	...	...	...	...	...	...	...	...
73	Night and Day	1932	2027	13	0	0	0	...	2	0
74	You're Getting to Be a...	1932	2027	6	0	0	0	...	0	0
total				537	4	4	5		20	3

**Original Variables:**

<b>SONG</b> .....	song number (for reference purpose)
<b>COMPOSITION</b> .....	name of the song (for reference purpose)
<b>PUBYR</b> .....	publication year
<b>TOT</b> .....	total appearance time (in film) for that song during 1968–2007
<b>T1968</b> .....	appears once for that song (in movie) in year 1968
<b>T2007</b> .....	appears once for that song (in movie) in year 2007
<b>EXP</b> .....	copyright expire time (where $PUBYR \leq 1922$ , $EXP = PUBYR + 75$ ; and $PUBYR > 1922$ , $EXP = PUBYR + 95$ )

The last row represents the total appearance of the songs in our list for a certain year from 1968–2007. This ranges from a low of two in 1971 to a high of forty-one in 1998.

***B. Data Manipulation***

As stated in the introduction, the first analysis of the popular songs concerns “availability” of songs from 1968–2007. Each song was measured at every year from 1968–2007, a total of forty time points. The forty variables T1968, T1969, . . . T2007 from the original data were converted into one variable called AFPUB, with the values for AFPUB being 59, 60, . . . 98 respectively. The modified data set should have  $74 \times 40 = 2960$  observations. This modified data set is called the song-year version of the popular songs. Three other variables, YR, MOV and PD, were also created from the original data set of  $N=74$  songs, and carried over to the new data set of 2960 song-year events. A sample of the modified data is shown in Table 2 below:

Table 2. Popular Songs (Song-Year)

OBS	SONG	PUBYR	YR	AFPUB	PD	MOV
1	1	1909	1968	59	0	0
2	1	1909	1969	60	0	0
3	1	1909	1970	61	0	0
4	1	1909	1971	62	0	0
.....	...	...	...	...	...	...
409	11	1916	1976	60	0	1
.....	...	...	...	...	...	...
751	19	1922	1998	76	1	0
.....	...	...	...	...	...	...
2956	74	1932	2006	74	0	0
2960	74	1932	2007	75	0	0

**Generated Variables:****OBS**..... observation number**SONG** ..... song number (same as in Table 1)**PUBYR:** ..... publication year of the song (same as in Table 1)**AFPUB:** ..... number of years after publication  
(as explained above)**YR:** ..... calendar year of measurement  
(= PUBYR+AFPUB)**MOV:**..... indicator of the appearance of the song  
(1 = appear in that year;  
0 = does not appear in that year)**PD:**..... indicator of the copyright  
(1 = in the public domain; 0 = not in public domain).

Observations where  $PUBYR \leq 1922$  and  $AFPUB \geq 75$  are in the public domain.

**II. STATISTICAL ANALYSIS AND RESULT**

Before presenting analysis results, it is necessary to briefly describe the tools and methodology that were used. Each of the four analyses took the same general path. First, the data were explored by

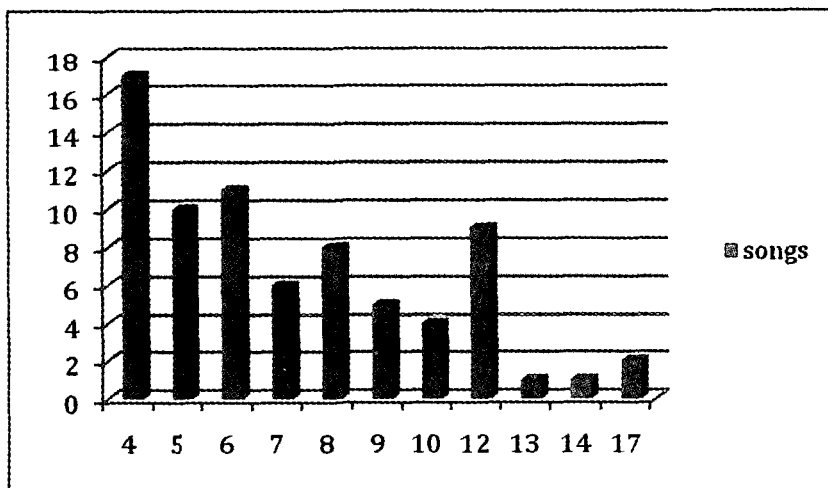
numerical and graphical summaries. Then, more sophisticated analyses followed. Since the response variable in this problem is dichotomous, logistic regression was applied.

### *A. Exploratory Data Analysis*

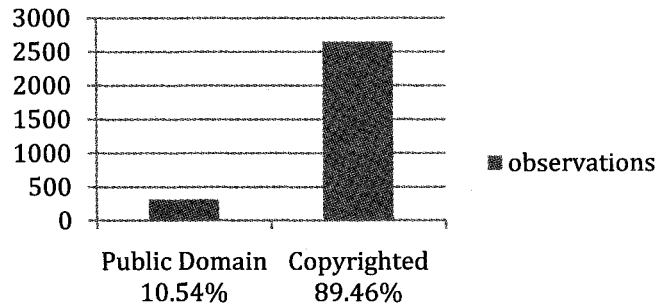
#### *1. Preliminary Analysis*

As shown in Table 1, the appearance time of each popular song varies from four to seventeen, and the total number of appearances is 537 (shown in the last row of Table 1 as variable TOT). In Figure 1, the histogram shows the frequency of song appearances. Because no song appears exactly fifteen or sixteen times in the data set, these two columns do not appear in the chart. The average appearance for each song is about seven times.

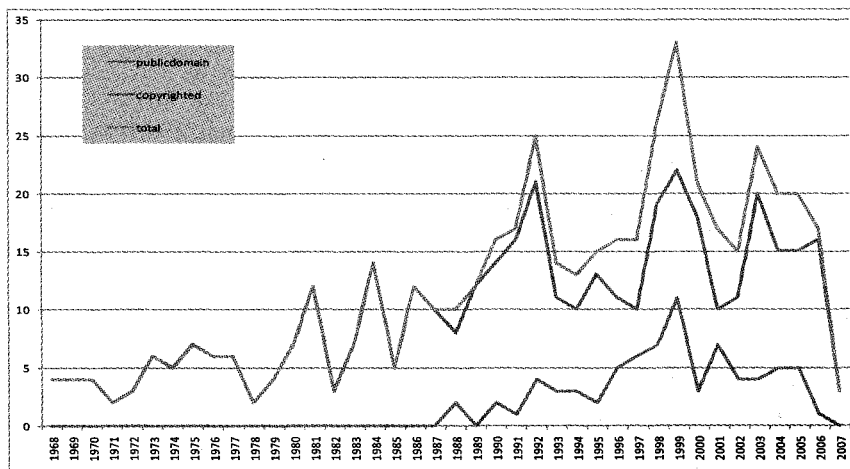
*Figure 1. Popular Songs by Number of Appearance (n=74)*

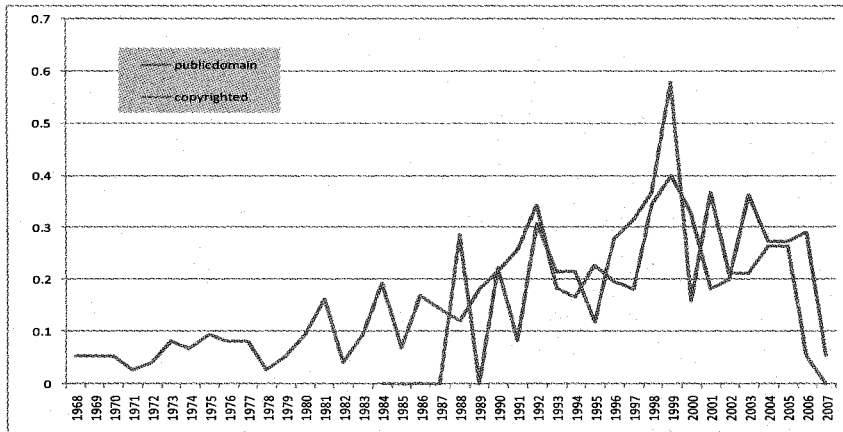


Through data manipulation, the appearance of a single song in a particular year becomes a dichotomous variable (MOV), zero if the song did not appear and one if it appeared in that year's movie. Because there were sixty-four occasions in which the same song appeared in more than one film during the same year, the total number of events in the dichotomous data set was reduced from 537 to 473 unique events. According to Table 2, of the 2,960 observations, only 312 are in the public domain and the rest are copyrighted. The percentages of these two groups are shown in Figure 2 below. The copyrighted observations are the majority with a percentage of 89.46%.

*Figure 2. Observations by Copyright Status*

Furthermore, consider the total appearance in one year (shown in Figure 3 below). By focusing on the total appearances, illustrated by the upper line, one can see an increase after the year 1984, when the songs published in 1909 entered the public domain. The total appearances also show a sharp decrease after 1998, when the songs in our study stopped entering the public domain. At the same time, the appearance of copyrighted songs, illustrated by the middle line (during the years 1968–1987, the middle line overlaps with the upper line), shows a steady increase throughout the entire time period. Contributions from the songs in the public domain (represented by the bottom line) give a linear increase in appearance time after 1984.

*Figure 3. Song Appearances by Year and Status*

*Figure 4. Appearance Probability by Year and Status ( $K \geq 4$ )*

On the other hand, the total number of observations for both copyrighted songs and those in the public domain are not equal. As shown in Figure 2, the proportion of appearances may be more appropriate to illustrate the effect of copyright. Divide the number of appearances in any year by the total number of that set for both public domain and copyrighted song observations. As shown in Figure 4, we can see a slight difference between the copyright statuses. Based on all of this, we can propose a null hypothesis that there is no significant difference in occurrence probability between the public-domain songs and copyrighted songs. An alternative hypothesis is that the songs in the public domain are more likely to be used in film. To decide which hypothesis is more probable we must perform further analysis.

According to Figures 3 and 4, we also notice that the value in year 2007 has an abnormally sharp decrease. We also perform the same preliminary analysis on the popular songs that appear more than once, twice, or three times. Those graphs show abnormally sharp decreases in year 2007 as well. It is reasonable to consider the year 2007 as an outlier in this study (which may be caused by incomplete data), so we do not include observations in 2007 in our further analysis. In year 2007, no public-domain song appeared in a film, and the copyrighted songs appeared only three times. After deleting this year for all seventy-four songs in 2007, we have a total of 470 appearances, including seventy-five public-domain songs and 395 copyrighted songs. The total observation number for all years combined decreases to  $74 \times 39$ , equaling 2,886.

## 2. Popular Songs Analysis 1 (Availability by Song-Year)

Results of song-year analysis of the popular songs are presented in this section. The frequency table of availability ('MOV' rows) versus copyright status ('PD' columns) is shown below:

Table 3. MOV\*PD Frequency Table

Frequency Col Percent	Public Domain	Copyrighted	Total
<b>Appear</b>	75 24.04%	395 15.35%	470 16.29%
<b>Not appear</b>	237 75.96%	2179 84.65%	2416 83.71%
<b>Total</b>	312	2574	2886 =74*39

Results from Table 3 show that over the period of analysis, 15.35% of copyrighted songs appeared versus 24.04% of those in the public domain. Assuming each determination of availability is independent from the others (which is not quite true here), the frequencies shown above imply that there exists an association between the rows and columns. But is the association statistically significant? The Chi-square test for independence of rows and columns is as follows:

$$\chi^2 = \sum \frac{(O-E)^2}{E} = \frac{(2179-2154.81)^2}{2154.81} + \frac{(237-261.19)^2}{261.19} + \frac{(395-419.19)^2}{419.19} + \frac{(75-50.81)^2}{50.81}$$

$$= 0.2715 + 2.2403 + 1.3959 + 11.5166 = 15.4242$$

$$P(\chi^2 > 15.4242) < 0.0001$$

The p-value from the Chi-square test indicates severe dependency between copyright status and appearance of songs in a movie. The Fisher exact test for positive association (upper-tail test for large sample) follows:

$$Z = \frac{T_2 - \frac{r \cdot c}{N}}{\sqrt{\frac{r \cdot c \cdot (N-r) \cdot (N-c)}{N^2 \cdot (N-1)}}} = \frac{75 - \frac{470 \cdot 312}{2886}}{\sqrt{\frac{470 \cdot 312 \cdot (2886-470) \cdot (2886-312)}{2886^2 \cdot (2886-1)}}} = 3.9265$$

Where c = sum of the first column = 312; r = sum of the first row = 470; N = grand sum = 2886;  $T_2 = 75$

$$P(Z > 3.9265) < 0.0001$$



The p-value from the Fisher exact test shows that songs in the public domain were used by moviemakers at a significantly higher rate than those that were copyrighted. The above result is based on the assumption that all observations are independent from others. It was used to determine if there exists an association that warrants further analyses. Since a strong dependency exists between copyright status and works' appearances, we proceed with further analysis. Of course, the results above are exaggerated to some extent because each song appeared, on average, about six times in the analysis, and the availability status for a particular song is surely positively correlated over time. However, even under the most severe assumption (that observations for a particular song are completely correlated, so that the sample size is exaggerated by a factor of 6), the  $\chi^2$  value obtained (15.42) would still lead one to conclude that there is very strong evidence of a public-domain effect.

### *3. Results for Other Thresholds*

The results presented above and analyzed in the bulk of this report concern the dataset when restricted to the  $n=74$  songs that appeared in at least four films during the thirty-nine years between 1968 and 2006. This restriction was made so as to include the songs that were clearly 'popular' over the period. On the other hand, this is a rather restrictive requirement, since it includes only seventy-four of the 1,294 popular songs released from 1909–1932, with only nineteen of these being current public-domain songs. If the threshold for inclusion were lowered from  $K \geq 4$  to  $K \geq 3$ ,  $K \geq 2$ , or  $K \geq 1$ , many more songs could be included, but the reliability of results might decrease. Table 4 below contains summaries of the data that would occur if one used other inclusion thresholds. The remainder of this report will concentrate on the  $K \geq 4$  case described in the first row of Table 4, and discussed heretofore, but results for the other three data sets will be presented at the end of the report.

Table 4. Summary of Data Sets Based on Inclusion Threshold ( $K$ )

$K$	Songs N EPD CP	All Events Ev UEv ESY P	PD Events UEv ESY P	CP Events UEv ESY P
$\geq 4$	74 19 55	537 470 2886 0.1629	75 312 0.2404	395 2574 0.1535
$\geq 3$	99 23 76	612 540 3861 0.1399	76 341 0.2229	464 3520 0.1318
$\geq 2$	146 40 106	706 633 5694 0.1112	91 552 0.1649	542 5142 0.1054
$\geq 1$	259 79 180	819 746 10101 0.0739	113 1058 0.1068	633 9043 0.0700

The 'Songs' section of Table 4 divides the 'N' songs that meet the threshold requirement into those that (1) have entered the public domain (EPD) and (2) are still copyright protected (CP). It should be remembered, of course, that the 'EPD' songs were not 'PD' for the entire period of observation. The next section of the table ('All Events') counts the total number of times that a song was used in a film in the thirty-nine year period from 1968–2006. This number of events ('Ev') is reduced slightly to unique events ('UEv'), since we allow a song to be counted at most once in a given year. Eligible song-years ('ESY') is given by  $ESY = N \times 39$ , since each song is eligible to be in a film for each of the thirty-nine years. The last column of this section, 'P,' where  $P = UEv/ESY$ , is the proportion of songs used in films. The last two sections, 'PD Events' and 'CP Events,' simply subdivide all song-years and associated events into those which occurred under 'PD' and those which occurred under 'CP' conditions. For all four threshold conditions, it can be noted that 'P' is higher under the PD conditions than under the CP conditions. One can easily perform Chi-squared tests, as was done above in Section III.1.b for the  $K \geq 4$  dataset, to show that the differences are significant. One objection to these tests could be that they do not account for time effects—the 'PD' group has a higher proportion of its songs eligible during the latter years of the observation period than does the 'CP' group. So, if there is an increase in utilization rate over time due to factors unrelated to copyright status, the Chi-squared tests could overstate the importance of the copyright status effect. To investigate this, the next section of this report introduces logistic regression models, which can control for both copyright status and time (year).

### *B. Logistic Regression*

In analysis 1 (song-year level) of the popular songs, the response variable (MOV) is dichotomous (zero if the song didn't appear, and one if it appeared in that year's movie). Logistic regression is appropriate for modeling this type of response variable.

Using copyright status (PD) alone to model availability (MOV) might omit other significant factors affecting a song's appearance in films. Other variables that could be included in the model are PUBYR, AFPUB, and YR. All four variables (PD, PUBYR, AFPUB, and YR) are possible explanatory variables for CPUB. Since copyright status is the explanatory variable of primary interest, it was the first variable included in the model. One should exercise care when choosing additional variables to include in the model, because some of these variables are functions of others and can create confounding effects. For example, copyright status (PD) depends solely on publication year (PUBYR) and age of the work (AFPUB), and the calendar year of the measurement (YR) is the sum of publication year (PUBYR) and age of the work (AFPUB). According to our data, the year 1984 is a key point to the observation, because the songs in our study start to fall into the public domain in that year. We make a new variable PY84, defined as  $PY84 = YR - 1984$ . Since the period is another effect of interest and PY84 was not too highly correlated with PD, it was included in the model (Figure 3 shows an increase in total appearance after year 1984). Including either PUBYR or AFPUB in this model (along with PD and PY84) will cause some confounding, so we did not attempt this.

Of course, just because appearance is more likely for PD than CP events, does not prove that PD is significantly higher than CP. The main confounder is year, because there were many more PD eligible songs during later years, and there seems to be a strong year effect. To investigate this, we considered a seven-level hierarchy of linear models:

$\ln(P/Q) = B_0$	[Model 0]
$\ln(P/Q) = B_0 + B_1 * PD$	[Model 1] {PD only}
$\ln(P/Q) = B_0 + B_1 * PD + B_2 * PY84$	[Model 1L] Linear in PY84
$\ln(P/Q) = B_0 + B_1 * PD + a(grp)$	[Model 1G] grouped year
$\ln(P/Q) = B_0 + B_1 * PD + B_2 * PY84$	[Model 2L] {Linear, Additive}
$\ln(P/Q) = B_0 + B_1 * PD + a(grp)$	[Model 2G] {grouped, Additive}
$\ln(P/Q) = B_0 + B_1 * PD + B_2 * PY84$	[Model 3L] {Linear, Interaction}
$+ B_3 * PD * PY84$	

In fact, Models 1L and 1G are similar in all cases, since the trend is close to linear. The grouped method uses five blocks of eight years, but similar results occurred with ten blocks of four years. The real question concerns whether the B1 coefficient in model 2L (or 2G) is significantly different from zero, or whether it can be thrown out, reducing to Model 1L (or 1G). It turns out that, in every case, the answer is ‘not significant’; there is no effect of PD/CP on appearance, once one controls for year effect. The fit for selected models for  $K \geq 4$  is shown in the Table below.

*Table 5. Summary of Seven Hierarchical Models for ( $K \geq 4$ ) Dataset*

Model	B0	B1	B2	B3	-2lnL	AIC	SBC
0	-1.6371	.	.	.	2565	2567	2573
1	-1.7077	+0.5571	.	.	2551	2555	2567
1L	-1.9642	.	+0.0598	.	2405	2409	2421*
1G	-1.7840	.	[GRP 5]	.	2398	2408*	2437
2L	-1.9602	-0.0534	+0.0603	.	2405	2411	2429
2G	-1.7708	-0.0530	[GRP 5]	.	2398	2410	2446
3L	-1.9704	+0.4635	+0.0618	-0.0365	2403	2411	2435

Based on the AIC or BIC, we can either pick the model with continuous year effect or the one with grouped year effect as our final model. Both of the models have the same interpretation of the data, which is that the probability of the songs appearing in a film increases over time, but there is no effect due to PD/CP.

We also perform the same analysis on other thresholds, and the result shows the same trend on the data set. The crucial results come from the analyses of Model 2L for each data set. In each case, the P-value for the ‘PD’ effect (‘B1’ in the model) shows no statistically significant difference from zero, as illustrated in Table 6 below. Thus, after accounting for the increase in appearance rates over time, there is no evidence that presence in, or absence from, the public domain has any positive or negative effect on appearance probability. This holds for all four data sets.

*Table 6. Parameter Estimates of B1 for 2L Models*

DataSet	B1-estimate	SE(B1)	z-stat	2-tailed P-value
K $\geq$ 4	-0.0534	.1504	-0.355	.7241
K $\geq$ 3	+0.0328	.1505	+0.218	.8277
K $\geq$ 2	-0.0854	.1304	-0.655	.5120
K $\geq$ 1	-0.1171	.1145	-1.022	.3067

### III. CONCLUSIONS

A naïve analysis of the data (the Chi-squared & Fisher's tests of section IV.1) demonstrate a clear difference in song availability between copyrighted and public-domain works, with the latter having significantly more appearances in films. A serious objection to this analysis is that it controlled for neither period effects, nor for the popularity of songs considered. After performing the logistic regression analysis to control for time-period effects, we find that copyright status plays no significant role in affecting the probability of a song's appearance in a film.

## APPENDIX C

The previously unpublished data in this Appendix shows the number of publishers from year 60 after publication to year 2006 and suggests no debasement of works after they fell into the public domain at year 75.

[illegible]

The Age of Innocence	Wharton, Edith	1920	1	2	3	12	15	35	35 print/7 ebooks
Scaramouche	Sabatini, Rafael	1921	0	1	1	5	3	18	18
Babbitt	Lewis, Sinclair	1922	2	3	4	10	12		30 print/7 ebooks
The Beautiful and the Damned	Fitzgerald, F. Scott	1922	1	2	2	2	11		18
Captain Blood	Sabatini, Raphael	1922	0	0	0	2	8		22
Ulysses	Joyce, James	1922	4	5	6	8			19 print/3 ebooks
Totals for 20 books			38	40	58	93	181	268	532 print/ 97 ebooks
Ave. Publ/Ed Per Print Book			1.9	2	2.9	4.7	9	13.4	26.6